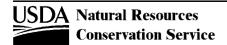
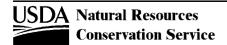
Dakota County, Minnesota

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
2B: Ostrander loam, 1 to 6 percent slopes	Ostrander	85	Moraines	No	
	Dickinson	8		No	
	Klinger	7		No	
2C: Ostrander loam, 6 to 12 percent slopes	Ostrander	85	Moraines	No	
	Dickinson	8		No	
	Klinger	7		No	
7A: Hubbard loamy sand, 0 to 1 percent slopes	Hubbard	90	Outwash plains	No	
	Dickinson	10		No	
7B: Hubbard loamy sand, 1 to 6 percent slopes	Hubbard	90	Outwash plains	No	
	Dickinson	10		No	
7C: Hubbard loamy sand, 6 to 12 percent slopes	Hubbard	90	Outwash plains	No	
	Dickinson	10		No	
7D: Hubbard loamy sand, 12 to 18 percent slopes	Hubbard	90	Outwash plains	No	
·	Hawick	10		No	
8A: Sparta loamy fine sand, 0 to 1 percent slopes	Sparta	90	Outwash plains	No	
	Dickinson	10		No	
8B: Sparta loamy fine sand, 1 to 6 percent slopes	Sparta	90	Outwash plains	No	
	Dickinson	10		No	



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
12C: Emmert very gravelly sandy loam, 3 to 15 percent slopes	Emmert	90	Moraines	No	
	Kingsley	10		No	
27A: Dickinson sandy loam, 0 to 2 percent slopes	Dickinson	90	Outwash plains	No	
	Hubbard	4		No	
	Sparta	3		No	
	Wadena	3		No	
27B: Dickinson sandy loam, 2 to 6 percent slopes	Dickinson	90	Outwash plains	No	
	Hubbard	4		No	
	Sparta	3		No	
	Zumbro	3		No	
39A: Wadena loam, 0 to 2 percent slopes	Wadena	85	Outwash plains	No	
	Estherville	8		No	
	Kanaranzi	7		No	
39B: Wadena loam, 2 to 6 percent slopes	Wadena	85	Outwash plains	No	
	Estherville	8		No	
	Kanaranzi	7		No	
39B2: Wadena loam, 2 to 6 percent slopes, eroded	Wadena, eroded	90	Outwash plains	No	
	Kennebec	10		No	

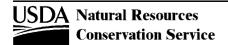


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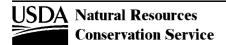
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
39C:	Wadana	05	Outural plains	Na	
Wadena loam, 6 to 12 percent slopes	Wadena	85	Outwash plains	No	
	Hawick	8		No	
	Kanaranzi	7		No	
39C2: Wadena loam, 6 to 12 percent slopes, eroded	Wadena, eroded	90	Outwash plains	No	
	Kennebec	10		No	
39D: Wadena loam, 12 to 18 percent slopes	Wadena	85	Outwash plains	No	
	Hawick	8		No	
	Kanaranzi	7		No	
41A: Estherville sandy loam, 0 to 2 percent slopes	Estherville Wadena	90 10	Outwash plains	No No	
41B: Estherville sandy loam, 2 to 6 percent slopes	Estherville	90	Outwash plains	No	
	Wadena	10		No	
42C: Salida gravelly coarse sandy loam, 2 to 12 percent slopes	Salida	90	Outwash plains	No	
	Hawick	10		No	
49B: Antigo silt loam, 1 to 8 percent slopes	Antigo	90	Outwash plains	No	
	Chetek	10		No	
81B: Boone loamy fine sand, 2 to 6 percent slopes	Boone	90	Hills	No	
	Etter	10		No	



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
81C: Boone loamy fine sand, 6 to 12 percent slopes	Boone	90	Hills	No	
	Etter	10		No	
81E: Boone loamy fine sand, 12 to 40 percent slopes	Boone	100	Hills	No	
94C: Terril loam, 4 to 12 percent slopes	Terril	100	Moraines, Toes	No	
98: Colo silt loam, occasionally flooded	Colo, occasionally flooded	85	Flood plains	Yes	2B3
	Garwin	5	Drainageways	Yes	2B3
	Lawson	5		No	
	Maxfield	5	Drainageways	Yes	2B3
100A: Copaston loam, 0 to 2 percent slopes	Copaston Bedrock Outcrops at Surface	97	Stream terraces	No No	
100B:					
Copaston loam, 2 to 6 percent slopes	Copaston	97	Stream terraces	No	
	Bedrock Outcrops at Surface	3		No	
100C: Copaston loam, 6 to 12 percent slopes	Copaston	97	Stream terraces	No	
	Bedrock Outcrops at Surface	3		No	
106B: Lester loam, 2 to 6 percent slopes	Lester	90	Moraines	No	
	Le Sueur	10		No	



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
06C:	Lester	90	Moraines	No	
Lester loam, 6 to 12 percent slopes			Woralites		
	Le Sueur	10		No	
06C2: Lester loam, 6 to 12 percent slopes, eroded	Lester, eroded	95	Moraines	No	
	Le Sueur	5		No	
06D2: Lester loam, 12 to 18 percent slopes, eroded	Lester, eroded	100	Moraines	No	
09: Cordova silty clay loam	Cordova	95	Moraines, Swales	Yes	2B3
	Le Sueur	5		No	
13: Nebster clay loam	Webster	85	Moraines, Swales	Yes	2B3
	Glencoe	8	Depressions	Yes	2B3, 3
	Le Sueur	7		No	
14: Glencoe silty clay loam	Glencoe	90	Depressions, Moraines	Yes	2B3, 3
	Webster	10	Swales	Yes	2B3
29: Cylinder loam	Cylinder	85	Outwash plains	No	
	Marshan	5	Depressions	Yes	2B3
	Wadena	5		No	
	Waukegan	5		No	
50B: Spencer silt loam, 2 to 6 percent slopes	Spencer	90	Moraines	No	
	Auburndale	5	Depressions	Yes	2B3
	Otterholt	5		No	



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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
151C: Burkhardt sandy loam, 6 to 12 percent slopes	Burkhardt	95	Outwash plains	No	
	Carmi	5		No	
151D: Burkhardt sandy loam, 12 to 18 percent slopes	Burkhardt	95	Outwash plains	No	
	Carmi	5		No	
155B: Chetek sandy loam, 3 to 8 percent slopes	Chetek	85	Outwash plains	No	
	Kingsley	8		No	
	Mahtomedi	7		No	
155C: Chetek sandy loam, 8 to 15 percent slopes	Chetek	85	Outwash plains	No	
	Kingsley	8		No	
	Mahtomedi	7		No	
155E: Chetek sandy loam, 15 to 25 percent slopes	Chetek	85	Outwash plains	No	
	Mahtomedi	10		No	
	Kingsley	5		No	
173F: Frontenac silt loam, 25 to 40 percent slopes	Frontenac	100	Hills	No	
176: Garwin silty clay loam	Garwin	90	Moraines, Swales	Yes	2B3
	Colo	5	Flood plains	Yes	2B3
	Joy	5		No	
177A: Gotham loamy fine sand, 0 to 2	Gotham	97	Outwash plains	No	
percent slopes	Soils with loamy glacial till within 40 to 60 inches	3		No	



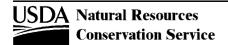
Dakota County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
177B:					
Gotham loamy fine sand, 2 to 6 percent slopes	Gotham	97	Outwash plains	No	
	Soils with loamy glacial till within 40 to 60 inches	3		No	
177C:					
Gotham loamy fine sand, 6 to 12 percent slopes	Gotham	97	Outwash plains	No	
	Soils with loamy glacial till within 40 to 60 inches	3		No	
189:					
Auburndale silt loam	Auburndale	90	Depressions, Moraines	Yes	2B3, 3
	Quam	10	Depressions	Yes	2B3, 3
203B:					
Joy silt loam, 1 to 5 percent slopes	Joy	90	Hills	No	
	Garwin	5	Drainageways	Yes	2B3
	Port Byron	5		No	
208:					
Kato silty clay loam	Kato	95	Flats, Outwash plains	Yes	2B3
	Cylinder	5		No	
213B:					
Klinger silt loam, 1 to 5 percent slopes	Klinger	90	Moraines	No	
	Maxfield	5	Drainageways	Yes	2B3
	Ostrander	5		No	
226:					
Lawson silt loam	Lawson	90	Flood plains	No	
	Colo	5	Flood plains	Yes	2B3
	Minneiska	5		No	

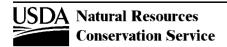


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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
239: Le Sueur Ioam	Le Sueur	85	Moraines	No	
Le Sueur Ioani		05			
	Cordova	8	Swales	Yes	2B3
	Lester	7		No	
250: Kennebec silt loam	Kennebec	100	Outwash plains	No	
251D: Marlean loam, 12 to 18 percent slopes	Marlean	95	Hills	No	
	Terril	5		No	
251E: Marlean loam, 18 to 25 percent slopes	Marlean	95	Hills	No	
	Terril	5		No	
252: Marshan silty clay loam	Marshan	90	Flats, Outwash plains	Yes	2B3
	Cylinder	10		No	
253: Maxcreek silty clay loam	Maxcreek	90	Moraines, Swales	Yes	2B3
	Merton	10		No	
255: Mayer silt loam	Mayer	90	Flats, Outwash plains	Yes	2B3
	Cylinder	10		No	
279B: Otterholt silt loam, 1 to 6 percent slopes	Otterholt	85	Moraines	No	
	Auburndale	8	Depressions	Yes	2B3
	Kingsley	7		No	

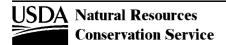


Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
279C: Otterholt silt loam, 6 to 15 percent	Otterholt	85	Moraines	No	
slopes	Auburndale	8	Depressions	Yes	2B3
	Kingsley	7		No	
283A: Plainfield loamy sand, 0 to 2 percent slopes	Plainfield	95	Outwash plains	No	
	Dickinson	5		No	
283B: Plainfield loamy sand, 2 to 6 percent slopes	Plainfield	95	Outwash plains	No	
	Dickinson	5		No	
283D: Plainfield loamy sand, 6 to 18 percent slopes	Plainfield	95	Outwash plains	No	
	Hawick	5		No	
285A: Port Byron silt loam, 0 to 2 percent slopes	Port Byron	95	Hills	No	
	Lindstrom	5		No	
285B: Port Byron silt loam, 2 to 6 percent slopes	Port Byron	90	Hills	No	
	Lindstrom	10		No	
285C: Port Byron silt loam, 6 to 12 percent slopes	Port Byron	90	Hills	No	
	Lindstrom	10		No	
299A: Rockton loam, 0 to 2 percent slopes	Rockton	100	Hills	No	
299B: Rockton loam, 2 to 6 percent slopes	Rockton	100	Hills	No	
299C: Rockton loam, 6 to 12 percent slopes	Rockton	100	Hills	No	

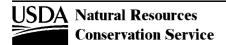


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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
301B: Lindstrom silt loam, 1 to 4 percent slopes	Lindstrom	100	Hills	No	
313: Spillville loam, occasionally flooded	Spillville, occasionally flooded	100	Flood plains	No	
317: Oshawa silty clay loam	Oshawa	95	Flood plains, Oxbows	Yes	2B3, 3, 4
	Minneiska	5		No	
318: Mayer loam, swales	Mayer, swales	90	Depressions, Outwash plains	Yes	2B3, 3
	Cylinder	10		No	
320B: Tallula silt loam, 2 to 6 percent slopes	Tallula	90	Hills	No	
	Lindstrom	10		No	
320C2: Tallula silt loam, 6 to 12 percent slopes, eroded	Tallula, eroded	90	Hills	No	
	Lindstrom	10		No	
342B: Kingsley sandy loam, 3 to 8 percent slopes	Kingsley	85	Moraines	No	
	Auburndale	5	Depressions	Yes	2B3
	Chetek	5		No	
	Kennebec	5		No	
342C: Kingsley sandy loam, 8 to 15 percent slopes	Kingsley	85	Moraines	No	
	Auburndale	5	Depressions	Yes	2B3
	Chetek	5		No	
	Kennebec	5		No	

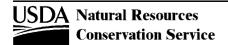


Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
342E:					
Kingsley sandy loam, 15 to 25 percent slopes	Kingsley	85	Moraines	No	
	Chetek	8		No	
	Kennebec	7		No	
342F: Kingsley sandy loam, 25 to 40 percent slopes	Kingsley	100	Moraines	No	
344:	0	00	Danisaina Marsina	Vaa	000 0
Quam silt loam	Quam	90	Depressions, Moraines	Yes	2B3, 3
	Kennebec	5		No	
	Palms	5	Depressions	Yes	1, 3, 4
377B: Merton silt loam, 1 to 6 percent slopes	Merton	90	Moraines	No	
	Blooming	5		No	
	Maxcreek	5	Swales	Yes	2B3
378:					
Maxfield silty clay loam	Maxfield	90	Moraines, Swales	Yes	2B3
	Colo	5	Flood plains	Yes	2B3
	Klinger	5		No	
382B: Blooming silt loam, 1 to 6 percent slopes	Blooming	90	Moraines	No	
S.0200	Merton	10		No	
408: Faxon silty clay loam	Faxon	90	Flats, Stream terraces	Yes	2B3
	Oshawa	5	Flood plains	Yes	2B3, 3
	Seelyeville	5	Depressions	Yes	2B3, 3, 4



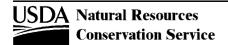
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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
409B:					
Etter fine sandy loam, 2 to 6 percent slopes	Etter	90	Hills	No	
	Wadena	10		No	
409C: Etter fine sandy loam, 6 to 12 percent slopes	Etter	90	Hills	No	
	Wadena	10		No	
411A: Waukegan silt loam, 0 to 1 percent slopes	Waukegan	90	Outwash plains	No	
	Estherville	5		No	
	Kanarazni	5		No	
411B: Waukegan silt loam, 1 to 6 percent slopes	Waukegan	90	Outwash plains	No	
	Estherville	5		No	
	Kanarazni	5		No	
411C: Waukegan silt loam, 6 to 12 percent slopes	Waukegan	90	Outwash plains	No	
	Kanarazni	10		No	
414: Hamel silt loam	Hamel	90	Moraines, Swales	Yes	2B3
	Glencoe	5	Drainageways, Swales	Yes	2B3, 3
	Le Sueur	5		No	
415A: Kanaranzi loam, 0 to 2 percent slopes	Kanaranzi	100	Outwash plains	No	
415B: Kanaranzi loam, 2 to 6 percent slopes	Kanaranzi	100	Outwash plains	No	
415C: Kanaranzi loam, 6 to 12 percent slopes	Kanaranzi	100	Outwash plains	No	

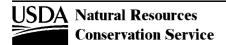


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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
449B:					
Crystal Lake silt loam, 1 to 8 percent slopes	Crystal Lake	100	Moraines	No	
454B: Mahtomedi loamy sand, 3 to 8 percent slopes	Mahtomedi	85	Moraines, Outwash plains	No	
	Kingsley	15		No	
454C: Mahtomedi loamy sand, 8 to 15 percent slopes	Mahtomedi	85	Outwash plains	No	
percent slopes	Kingsley	15		No	
454E: Mahtomedi loamy sand, 15 to 25 percent slopes	Mahtomedi	85	Outwash plains	No	
percent slopes	Kingsley	8		No	
	Kennebec	7		No	
463: Minneiska loam, occasionally flooded	Minneiska, occasionally flooded	85	Flood plains	No	
	Oshawa	8	Flood plains	Yes	2B3, 3, 4
	Colo	7	Flood plains	Yes	2B3
465: Kalmarville sandy loam, frequently flooded	Kalmarville, frequently flooded	100	Flood plains	Yes	2B3, 4
495: Zumbro fine sandy loam	Zumbro	100	Flood plains	No	
522: Boots muck	Boots	100	Depressions, Moraines	Yes	1, 3, 4
539: Palms muck	Palms	100	Depressions, Moraines	Yes	1, 3, 4
540: Seelyeville muck	Seelyeville	100	Depressions, Moraines	Yes	1, 3, 4



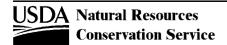
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
545:					
Rondeau muck	Rondeau	100	Depressions, Moraines	Yes	1, 3, 4
S11C: Hawick coarse sandy loam, 6 to 12 percent slopes	Hawick	90	Outwash plains	No	
	Salida	10		No	
611D: Hawick coarse sandy loam, 12 to 18	Hawick	90	Outwash plains	No	
percent slopes	Salida	10		No	
S11E:					
Hawick loamy sand, 18 to 25 percent slopes	Hawick	100	Outwash plains	No	
S11F: Hawick loamy sand, 25 to 50 percent slopes	Hawick	100	Outwash plains	No	
857A: Urban land-Waukegan complex, 0 to 1 percent slopes	Urban land	90	Outwash plains	No	
,	Waukegan	10	Outwash plains	No	
357B:					
Urban land-Waukegan complex, 1 to 8 percent slopes	Urban land	90	Outwash plains	No	
	Waukegan	10	Outwash plains	No	
858C:					
Urban land-Chetek complex, 1 to 15 percent slopes	Urban land	65	Outwash plains	No	
	Chetek	35	Outwash plains	No	
360C:					
Urban land-Lester complex, 3 to 15 percent slopes	Urban land	65	Moraines	No	
	Lester	35	Moraines	No	
361C:					
Urban land-Kingsley complex, 3 to 15 percent slopes	Urban land	65	Moraines	No	
	Kingsley	35	Moraines	No	



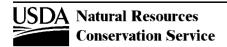
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
861E:					
Urban land-Kingsley complex, 15 to 25 percent slopes	Urban land	65	Moraines	No	
	Kingsley	35	Moraines	No	
865B:					
Urban land-Hubbard complex, 0 to 6 percent slopes	Urban land	65	Outwash plains	No	
	Hubbard	35	Outwash plains	No	
880F:					
Brodale-Rock outcrop complex, 18 to 45 percent slopes	Brodale	70	Hills	No	
	Rock outcrop	30	Hills	No	
888B:					
Kingsley-Lester complex, 2 to 6 percent slopes	Kingsley	55	Moraines	No	
	Lester	35	Moraines	No	
	Estherville	5		No	
	Le Sueur	5		No	
888C:					
Kingsley-Lester complex, 6 to 12 percent slopes	Kingsley	55	Moraines	No	
	Lester	35	Moraines	No	
	Estherville	5		No	
	Le Sueur	5		No	
888D:					
Kingsley-Lester complex, 12 to 18 percent slopes	Kingsley	55	Moraines	No	
	Lester	35	Moraines	No	
	Estherville	10		No	



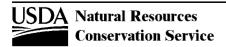
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
889B: Wadena-Hawick complex, 2 to 6	Wadena	55	Outwash plains	No	
percent slopes	Hawick	35	Outwash plains	No	
	Jewett	5	· 	No	
	Kennebec	5		No	
889C:					
Wadena-Hawick complex, 6 to 12 percent slopes	Wadena	55	Outwash plains	No	
	Hawick	35	Outwash plains	No	
	Jewett	5		No	
	Kennebec	5		No	
889D: Wadena-Hawick complex, 12 to 18 percent slopes	Wadena	60	Outwash plains	No	
p	Hawick	40	Outwash plains	No	
895B: Kingsley-Mahtomedi-Spencer complex, 3 to 8 percent slopes	Kingsley	45	Moraines	No	
	Mahtomedi	23	Moraines	No	
	Spencer	22	Moraines	No	
	Kennebec	10		No	
895C: Kingsley-Mahtomedi-Spencer complex, 8 to 15 percent slopes	Kingsley	45	Moraines	No	
	Mahtomedi	23	Moraines	No	
	Spencer	22	Moraines	No	
	Kennebec	10		No	



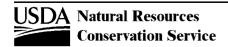
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
896E:					
Kingsley-Mahtomedi complex, 15 to 25 percent slopes	Kingsley	60	Moraines	No	
	Mahtomedi	30	Moraines	No	
	Kennebec	10		No	
896F: Kingsley-Mahtomedi complex, 25 to 40 percent slopes	Kingsley	65	Moraines	No	
	Mahtomedi	35	Moraines	No	
963C2: Timula-Bold silt loams, 6 to 12 percent slopes, eroded	Timula, eroded	57	Hills	No	
	Bold, eroded	38	Hills	No	
	Lindstrom	3		No	
	Waukegan, bedrock substratum	2		No	
963D2: Timula-Bold silt loams, 12 to 18 percent slopes, eroded	Timula, eroded	57	Hills	No	
	Bold, eroded	38	Hills	No	
	Marlean	5		No	
963E2: Timula-Bold silt loams, 18 to 25 percent slopes, eroded	Timula, eroded	57	Hills	No	
	Bold, eroded	38	Hills	No	
	Marlean	5		No	
1013: Pits, quarry	Pits, quarry	100	Stream terraces		
1027: Udorthents, wet	Udorthents, wet	100	Stream terraces		
1029: Pits, gravel	Pits, gravel	100	Outwash plains		



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1039: Urban land	Urban land	100	Moraines		
Orban land	Olban land	100	Moranios		
1055: Aquolls and Histosols, ponded	Aquolls, ponded	50	Depressions, Moraines	Yes	2B3, 3
	Histosols, ponded	50	Depressions, Moraines	Yes	1, 3
1072: Udorthents, moderately shallow	Udorthents, moderately shallow	100	Stream terraces		
1815: Zumbro loamy fine sand	Zumbro, non-flooded	100	Flood plains	No	
1816: Kennebec variant silt loam	Kennebec	90	Moraines	No	
	Quam	10	Depressions	Yes	2B3, 3
1821: Algansee sandy loam, occasionally flooded	Algansee, occasionally flooded	95	Flood plains	No	
	Chaska	5	Depressions	Yes	2B3, 4
1824: Quam silt loam, ponded	Quam, ponded	90	Depressions, Moraines	Yes	2B3, 3
	Palms	10	Depressions	Yes	1, 3, 4
1825C: Seelyeville muck, sloping	Seelyeville, sloping	90	Bluffs, Toes	Yes	1
	Seepy Mineral Soils	10	Bluffs, Toes	Yes	1, 3, 4
1827A: Waukegan silt loam, bedrock substratum, 0 to 2 percent slopes	Waukegan, bedrock substratum	90	Outwash plains	No	
	Rockton	10		No	
1827B: Waukegan silt loam, bedrock substratum, 2 to 6 percent slopes	Waukegan, bedrock substratum	90	Outwash plains	No	
	Rockton	10		No	



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1827C:					
Waukegan silt loam, bedrock substratum, 6 to 12 percent slopes	Waukegan, bedrock substratum	90	Outwash plains	No	
	Rockton	10		No	
1848B:					
Sparta loamy sand, bedrock substratum, 2 to 8 percent slopes	Sparta, bedrock substratum	90	Hills	No	
	Rockton	10		No	
1894B: Winnebago loam, 2 to 6 percent slopes	Winnebago	90	Moraines	No	
	Burkhardt	5		No	
	Carmi	5		No	
1895B:					
Carmi loam, 2 to 8 percent slopes	Carmi	90	Moraines	No	
	Burkhardt	5		No	
	Winnebago	5		Yes	
1896B:					
Ostrander-Carmi loams, 2 to 6 percent slopes	Ostrander	55	Moraines	No	
	Carmi	35	Moraines	No	
	Dickinson	5		No	
	Klinger	5		No	
1898F: Etter-Brodale complex, 25 to 60 percent slopes	Brodale	50	Hills	No	
•	Etter	50	Hills	No	



Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1902B: Jewett silt loam, 1 to 6 percent slopes	Jewett	85	Moraines	No	
	Antigo	5		No	
	Kingsley	5		No	
	Spencer	5		No	
W: Water	Water	100			

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

- 1. All Histels except for Folistels, and Histosols except for Folists.
- 2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2) a water table at a depth of 0.5 foot or less during the growing season if
 - permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
- 3. Soils that are frequently ponded for long or very long duration during the growing season.
- 4. Soils that are frequently flooded for long or very long duration during the growing season.

References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. September 18, 2002. Hydric soils of the United States.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 5.0, 2002. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 2003. Keys to soil taxonomy. 9th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

